



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/619,736	07/19/2000	Reza Mirkhani	99RSS476NAD	2617
36122	7590	11/26/2003	EXAMINER	
DUFT SETTER OLLILA & BORNSSEN LLC 2060 BROADWAY SUITE 300 BOULDER, CO 80302			PARK, ILWOO	
			ART UNIT	PAPER NUMBER
			2182	9

DATE MAILED: 11/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/619,736

Applicant(s)

MIRKHANI ET AL.

Examiner

Ilwoo Park

Art Unit

2182

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/12/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-11 and 14-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-11 and 14-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/12/2003 has been entered.
2. Applicant's amendment filed on 9/12/2003 in response to Examiner's Office Action has been reviewed. Claims 1, 2, 11, 14, and 16 are amended and claim 4 is canceled. The following rejections now apply.
3. Claims 1-3, 5-11, and 14-20 are presented for examination.
4. Sorber, Fluss, Smith, and Dolkas et al were cited as prior art in the last office action.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2182

6. Claims 1-3, 5, 10, 11, 14, 15, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sorber, US patent No. 6,018,515 in view of Fluss, US patent No. 6,304,578.

As to claim 1, Sober teaches a link layer controller [fig. 3 and col. 4, lines 41-50] comprising:

a network layer interface [col. 5, lines 60-67] configured to exchange packets with a network layer system and transfer a status signal to the network layer system;

a physical layer interface [col. 6, lines 1-11] configured to exchange the packets with a physical layer system;

a memory [fig. 5] comprising a plurality of transmit buffers; and

a memory controller [figs. 3 and 5] configured to exchange the packets with the network layer interface exchange the packets with the memory [col. 6, lines 38-44], exchange the packets with the physical layer interface, determine available space in at least one of the plurality of transmit buffers, and generate the status signal [col. 8, line 62-col. 9, line 10] to control of packets to prevent [col. 9, lines 9-10] over-run in the plurality of transmit buffers.

However, Sober does not explicitly teach each of the plurality of transmit buffers corresponds with a transmit channel of a plurality of transmit channels and if occupancy on a first transmit buffer corresponding with a first transmit channel exceeds a threshold, then prioritize the transmit channels to transmit packets from the first transmit buffer corresponding with the first transmit channel.

Fluss teaches a memory controller having a plurality of transmit buffers for exchanging packets with a network layer and exchanging packets with a physical layer; specifically, Fluss teaches each of the plurality of transmit buffers corresponding with a transmit channel [col. 4, lines 63-64; fig. 1] of a plurality of transmit channels and the memory controller configured to prioritize [col. 7, lines 4-8] the transmit channels to transmit packets from a first transmit buffer corresponding with a first transmit channel if occupancy on the first transmit buffer corresponding with the first transmit channel exceeds a threshold.

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Sober and Fluss because they both teach a plurality of transmit buffers for exchanging packets with a network layer and exchanging packets with a physical layer in network communication and a memory controller checking an occupancy status of each buffer for flow control of transmit packets and the Fluss' teaching of the plurality of transmit buffers corresponding with a transmit channel of a plurality of transmit channels and the memory controller configured to prioritize the transmit channels to transmit packets from a first transmit buffer corresponding with a first transmit channel if occupancy on the first transmit buffer corresponding with the first transmit channel exceeds a threshold would increase flexibility of managing a buffer per channel allocated in network communication of multi-channels.

7. As to claim 2, Fluss teaches the status signal indicates the available space in each of the transmit buffers [col. 7, lines 8-13].

Art Unit: 2182

8. As to claims 3 and 14, Sober teaches the memory controller is configured to control a size of each of the transmit buffers in response to external instructions from the network layer system [col. 8, lines 45-51; col. 9, lines 15-21].

9. As to claims 5 and 15, Sorber teaches the network layer interface [MTP-L3 interface bus driver 12 in fig. 3] is configured to use a packet exchange bus to exchange the packets with the network layer system and to transfer the status signal to the network layer system [col. 9, lines 4-10].

10. As to claims 10 and 20, Sorber teaches the network layer interface [MTP-L3 interface bus driver 12 in fig. 3] is configured to use a packet exchange bus to exchange stop transfer signals with the network layer system [col. 9, lines 4-10].

11. As to claim 11, Sober teaches a method of operating a communications device [figs. 3 and 5; col. 4, lines 41-50; col. 5, line 60-col. 6, line 11] that includes a memory comprising a plurality of transmit buffers, the method comprising:

transferring packets between a network layer system and a link layer system;

transferring packets between the link layer system and a physical layer system;

transferring packets between the physical layer system and a communication path;

and

generating a status signal [col. 8, line 62-col. 9, line 28] in the link layer system indicating available space in each of the plurality of transmit buffers.

However, Sober does not explicitly teach each of the plurality of transmit buffers corresponds with a transmit channel of a plurality of transmit channels and if occupancy on a first transmit buffer corresponding with a first transmit channel exceeds a threshold,

Art Unit: 2182

then prioritize the transmit channels to transmit packets from the first transmit buffer corresponding with the first transmit channel.

Fluss teaches a memory controller having a plurality of transmit buffers for exchanging packets with a network layer and exchanging packets with a physical layer; specifically, Fluss teaches each of the plurality of transmit buffers corresponding with a transmit channel [col. 4, lines 63-64; fig. 1] of a plurality of transmit channels and the memory controller configured to prioritize [col. 7, lines 4-8] the transmit channels to transmit packets from a first transmit buffer corresponding with a first transmit channel if occupancy on the first transmit buffer corresponding with the first transmit channel exceeds a threshold.

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Sober and Fluss because they both teach a plurality of transmit buffers for exchanging packets with a network layer and exchanging packets with a physical layer in network communication and a memory controller checking an occupancy status of each buffer for flow control of transmit packets and the Fluss' teaching of the plurality of transmit buffers corresponding with a transmit channel of a plurality of transmit channels and the memory controller configured to prioritize the transmit channels to transmit packets from a first transmit buffer corresponding with a first transmit channel if occupancy on the first transmit buffer corresponding with the first transmit channel exceeds a threshold would increase flexibility of managing a buffer per channel allocated in network communication of multi-channels.

Art Unit: 2182

12. Claims 6-9 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sorber and Fluss as applied to claims 5 and 15 above, and further in view of Dolkas et al., US patent No. 5,007,051.

As to claims 6 and 16, Dolkas et al teach a packet exchange bus to exchange a status including parity information with a network layer system [register 103 in figs. 3 and 4; col. 8, lines 25-38; col. 10, lines 13-15; col. 12, lines 66-68].

As to claims 7 and 17, Dolkas et al teach a packet exchange bus to exchange a status including data validity information [col. 10, line 67-col. 11, line 2].

Therefore, it would have been obvious to one of ordinary skill in the art to include the Dolkas et al's teaching of the packet exchange bus including parity information and data validity information would increase reliability of packet transfer of Sorber and Fluss.

As to claims 8 and 18, Dolkas et al teach a packet exchange bus to exchange a status including start of packet information and end of packet information [col. 1, lines 49-52].

As to claims 9 and 19, Dolkas et al teach a packet exchange bus to exchange a status including a synchronization signal [col. 1, lines 49-52].

Therefore, it would have been obvious to one of ordinary skill in the art to include the Dolkas et al's teaching of the packet exchange bus including start of packet information, end of packet information parity information, and/or a synchronization signal would increase flexibility in processing a packet.

Art Unit: 2182

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ilwoo Park whose telephone number is (703) 308-7811. The examiner can normally be reached on Monday through Friday from 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey A Gaffin can be reached on (703) 308-3301. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Hand-delivered responses should be brought to US Patent and Trademark Office, 2011 South Clark Place, Customer Window, Crystal Plaza Two, Lobby, Room 1B03, Arlington, VA 22202.


Ilwoo Park

Primary Examiner

November 20, 2003